Figure 1

# 



$$R_4$$
= a) - (CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>  
b) - (CH<sub>2</sub>)<sub>8</sub>CH<sub>3</sub>

- A) base
- B) IRA 402/OH form

# Figure 2

$$CI$$
 $OE:$ 
 $OR_{1}$ 
 $OR_{2}$ 
 $OR_{3}$ 
 $OR_{4}$ 
 $OR_{5}$ 
 $OR_{5}$ 

$$\begin{array}{c|c}
OR_{2} & OR_{3} & OR_{4} & OR_{5} & OR$$

$$R_4=$$
 a) - (CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>  
b) - (CH<sub>2</sub>)<sub>13</sub>CH<sub>3</sub>

- A) R<sub>4</sub>OH, SOCl<sub>2</sub>
- B) Et<sub>3</sub>SiH, BF3.Et<sub>2</sub>O
- C) NaN<sub>3</sub>
- D) Pd/C H<sub>2</sub>, HCHO
- E) CH<sub>3</sub>I
- F) IRA 402 OH

# Figure 3 A

$$N_{3} \longrightarrow OEt \xrightarrow{A} N_{3} \longrightarrow OH \xrightarrow{B} N_{3} \longrightarrow N_{1} \longrightarrow O(CH_{2})_{13}CH_{3}$$

$$O(CH_{2})_{13}CH_{3} \longrightarrow O(CH_{2})_{13}CH_{3}$$

$$O(CH_{2})_{13}CH_{3} \longrightarrow O(CH_{2})_{13}CH_{3}$$

$$O(CH_{2})_{13}CH_{3} \longrightarrow O(CH_{2})_{13}CH_{3}$$

$$\begin{array}{c}
C \\
 & \downarrow \\
 & \downarrow$$

- A) NaOH 4N. MeOH. 16h. t.a
- B) H2NCH2H2CN, DMF, TEA, DEPC
- C) THF. Ph3P
- D) (BOC)20. NaOH IN
- E) THF. Ph3P. DEAD. E13SiN3
- F) HCI 3N, NaOH IN

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# Figure 3 B

- н) нсоон. н<sub>2</sub>со
- D CH31
- L) IRA 402 attiv. OH

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# Figure 4

$$R_4$$
= a) - (CH<sub>2</sub>)<sub>7</sub>CH<sub>3</sub>  
b) - (CH<sub>2</sub>)<sub>13</sub>CH<sub>3</sub>

- A) 1) BuLI 2)BF<sub>3</sub>. Et<sub>2</sub>O
- B) R<sub>4</sub>OCOCl, Base
- C)  $R_4N=C=O, BF_3 \cdot Et_2O$
- D) Quinuclidine F)Trimethylamine
- H) Pyridine
- $E=G) H_2,Pd/C$